

**REMARKS**

Entry of the foregoing, reexamination and reconsideration of the subject application are respectfully requested in light of the amendments above and the comments which follow.

In the Office Action Summary, it is stated that claims 28-40 and 56 were pending. This is incorrect. Claims 28-54 and 56 were pending. Claims 41-54 have been withdrawn as allegedly being directed to a non-elected invention, but withdrawn claims are still pending. By the present response, claims 57-64 have been added. Thus, upon entry of the present response, claims 28-54 and 56-64 are pending, with claims 41-54 having been withdrawn from consideration at this time.

Support for the foregoing amendments can be found, for example, in at least the following locations in the original disclosure: page 14, line 30 - page 15, line 27.

Entry of the foregoing amendments is appropriate pursuant to 37 CFR §1.116 for at least the following reasons: the foregoing amendments do not necessitate further search (in that the entire disclosure should be searched upon initial examination); and the newly presented claims clearly serve to further patentably distinguish the present invention over the prior art.

Applicants wish to thank Examiner Abu Ali for the courtesies extended to applicants' representative during a personal interview conducted in the U.S. Patent and Trademark Office on January 4, 2011. During the interview, applicants' representative emphasized that the applied prior art references as a whole actually teach away from the requirements of the presently claimed invention, and that the presently claimed invention possesses unexpected advantages relative to the applied prior art. A more detailed summary of the discussions had during the

personal interview is incorporated in the following remarks. While no agreement was reached concerning the allowability of the claimed invention, it is believed that the discussions were productive and will ultimately lead to advancing the present application to issue.

***REJECTIONS UNDER 35 U.S.C. §103***

The Official Action rejected claims 28-29, 31, 33-40 and 56 under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Patent No. 3,753,751 to Shannon et al. (hereafter "*Shannon et al.*") in view of European Patent Publication No. 0594469 ("EP '469").

The presently claimed invention is directed to a method of making a precipitated silica-based material which possesses properties which render it suitable for applications such as thermal and/or acoustic insulation. It is desirable to produce such materials which possess both sufficient mechanical properties or strength, as well as good insulation properties. One property possessed by the material which influences both the mechanical and insulation properties thereof is the pore structure of the material.

As discussed in the present specification, conventional methods for preparing such materials include compacting of dried particular materials (e.g., see page 3 of the present specification), as well as drying of an aqueous slurry (e.g., EP '469 as discussed on pages 3-5 of the present specification).

With respect to the above-mentioned dry compacting techniques, it is difficult to produce materials which possess sufficient mechanical or insulating properties. The above-mentioned aqueous slurry drying techniques often results in materials

which possess greater mechanical strength as well as better insulating properties than the aforementioned dry compacting techniques. It is believed that the operation of drying an aqueous slurry instead of a dry compacting operation enables the production of the resulting material with a relatively higher pore volume (see, e.g. page 4, lines 8-12 of the present specification). *EP '469* represents a known aqueous slurry drying technique. However, *EP '469* teaches production of an aqueous slurry by pulverizing a filter cake of precipitated silica.

Applicants have surprisingly discovered that a thermal and or acoustic insulation material can be formed which possesses desirable mechanical and insulating properties by a counterintuitive modification of the process taught by *EP '469*. As expressly discussed on page 5 of the present specification:

In other words, the inventors have surprisingly discovered that it is possible to improve the method of EP 0 594 469, especially by avoiding one of the steps of this method, thereby making it possible to produce more advantageous materials by means of a less expensive method. In addition, by carrying out the drying directly on a compacted silica cake obtained from a filter press, the use of a mold is no longer necessary for the drying step insofar as the compacted cake is already formed in the filter press. This further reduces the production costs of the material.

Without being tied down to any specific theory, it seems plausible that a drying operation carried out on a compacted aqueous composition, instead of on a pulverized composition as used in EP 0 594 469, makes it especially possible to reduce the size of the pores present in the material, in general without important reduction of the total pore volume, which especially enhances the thermal and acoustic insulation properties.

The Official Action alleges that *Shannon et al.* discloses a method of making insulation material by route of filter-press technique by dispersing insulation material in water to form slurry, the partially dewatering the slurry, and treating under heat and pressure. The Official Action further alleges that *Shannon et al.* discloses a

drying process, but that *Shannon et al.* is "silent" with respect to the insulation material being based on dried precipitated silica. Applicants traverse the characterization that *Shannon et al.* is "silent" with respect to its teachings regarding the selection of an appropriate insulation material.

In fact, *Shannon et al.* teaches away from forming a thermal and/or acoustic insulation material from precipitated silica, and instead requires the use of alkaline earth metal silicate to provide the desired insulative properties:

The porous integrated crystalline or microcrystalline structure of alkaline earth metal silicate thermal insulation materials gives rise to many desirable physical characteristics which, as is well-known to those skilled in the art, are not attainable with other types of thermal insulation materials.  
(Emphasis added) (Col. 1, lines. 49-54)

Before proceeding with a detailed description of the drawings, it is important to keep in mind that the nature and character of the present invention, as well as the structural and physical features thereof. . . is such that it applies without limitation to all forms, shapes and customary usages of hydrothermally or new pneumatolytically molded bodies of hydrous alkaline earth metal silicate insulation materials.  
(Emphasis added) (Col. 5, lines. 31-39)

*Shannon et al.* clearly fails to disclose a process of forming a material from precipitated silica. In fact, *Shannon et al.* goes a step further and teaches away from forming such insulating materials. *Shannon et al.* is devoid of any hint that the objectives of the invention described therein can be achieved with any other insulative material other than an alkaline earth metal silicate, in fact *Shannon et al.* expressly says that they cannot. Thus, even if one of ordinary skill in the art were to attempt to incorporate silica into the process disclosed by *Shannon et al.*, the result would be to react the silica with an alkaline earth metal to form alkaline earth metal silicate, thus falling outside the scope of the presently claimed invention.

The Official Action relies on *EP '469* for the alleged disclosure of an insulation material comprising silica and the silica weight in the composition in the range of 45-90% (Official Action at page 6). *EP '469* not only fails to lead one of ordinary skill in the art any closer to the presently claimed invention and *Shannon et al.*, but in fact teaches away from the method of amended claim 28.

Claim 28 requires drying the filter cake in the compacted state.

As discussed at length in the present specification, *EP '469* teaches pulverizing the filter cake to form a slurry, then drying the slurry in a separate mold. Thus, *EP '469* teaches away from the requirements of claim 28 because *EP '469* requires drying an aqueous slurry rather than a filter cake in the compacted state. As discussed above, and in the present specification, the conventional thinking in the art being such that drying the aqueous slurry being necessary to provide the resulting material with an acceptable pore structure.

Advantageously, this distinction of the presently claimed invention provides the benefit of carrying out the drying step directly upon the compacted filter cake thus avoiding the extra pulverization step, and additionally eliminating the requirement of a separate mold for drying the aqueous slurry. See, e.g., page 5 of the present specification.

Since both *Shannon et al.* and *EP '469*, when properly considered as a whole, teach away from claim 28, claim 28 and all claims dependent thereon are patentable over the references as combined.

In addition, claim 29 further specifies that step (A) includes a compacting operation at a pressure of about 2 to about 10 bar. By contrast, *Shannon et al.* teaches pressing and alkali metals locate material at a much greater pressure, i.e.,

on the order of "several hundred pounds per square inch." Thus, when properly considered as a whole, *Shannon et al.* also teaches away from this aspect of claim 29. Thus, claim 29 is distinguishable over the applied prior art for at least this additional reason.

The Official Action rejected claim 32 under 35 U.S.C. §103(a) as being unpatentable over the combined teachings of *Shannon et al.* and *EP '469* as applied above, and further in view of U.S. Patent No. 4,590,052 to Chevallier et al. (hereafter "*Chevallier et al. '052*").

*Chevallier et al. '052* is cited as allegedly teaching using precipitated silica having the claimed BET specific surface area and CTAB specific surface. However, even if this three-reference combination were appropriate, and the alleged teachings of *Chevallier et al. '052* were applied exactly as suggested in the grounds for rejection, the claimed invention would not result. Namely, the alleged teachings of *Chevallier et al. '052* fail to cure the deficiencies previously noted above in connection with the combined teachings of *Shannon et al.* with *EP '469* with respect to the requirements of claim 28.

The Official Action rejected claim 30 under 35 U.S.C. §103(a) as being unpatentable over the combined teachings of *Shannon et al.* and *EP '469* as applied above, and further in view of U.S. Patent No. 6,468,493 to Chevallier et al. (hereafter "*Chevallier et al. '493*").

*Chevallier et al. '493* is cited as allegedly teaching the two-stage pressing parameters of claim 30. However, even if this three-reference combination were appropriate, and the alleged teachings of *Chevallier et al. '493* were applied exactly as suggested in the grounds for rejection, the claimed invention would not result.

Namely, the alleged teachings of *Chevallier et al.* '493 fail to cure the deficiencies previously noted above in connection with the combined teachings of *Shannon et al.* with *EP* '469 with respect to the requirements of claim 28.

In addition, *Chevallier et al.* '493 suggests a minimum pressure during filter pressing of 3.5 bar (column 4, line 2). By contrast, claim 30 requires a filter pressing stage (A1) at about 0.5 to about 2 bar. Therefore, *Chevallier et al.* '493 also fails to disclose or suggest the method recited in claim 34 for at least this additional reason.

### **NEW CLAIMS**

By the present response, claims 57-64 are added. Claim 57 depends from claim 1. Thus, claim 57 is distinguishable over the applied prior art for at least the same reasons noted above. In addition, claim 57 further specifies certain advantageous properties concerning the pore structure of the insulative material according to the method of claim 28. None of the applied prior art references disclose or even suggest the pore structure recited in claim 57. Thus, claim 57 is distinguishable over the applied prior art for least these additional reasons. Claims 58-64 depend from claim 57. Thus, these claims are also distinguishable over the applied prior art for at least the same reasons noted above.

**CONCLUSION**

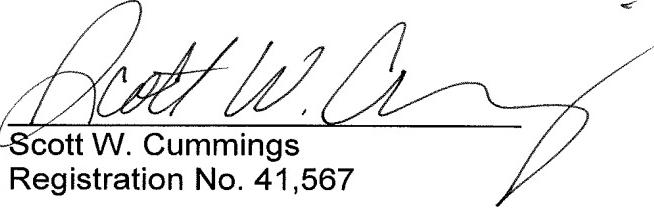
From the foregoing, further and favorable action in the form of a Notice of Allowance is earnestly solicited. Should the Examiner feel that any issues remain, it is requested that the undersigned be contacted so that any such issues may be adequately addressed and prosecution of the instant application expedited.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

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